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Requested Patent: GB2270936A

Title:

FIRE STOP COVERING DEVICE, E.G. FOR CEILING APERTURE ;

Abstracted Patent: GB2270936 ;

Publication Date: 1994-03-30 ;

Inventor(s): HAMILTON ARTHUR PETER ;

Applicant(s): HAMILTON ARTHUR PETER (GB) ;

Application Number: GB19930019052 19930915 ;

Priority Number(s): GB19920020478 19920929 ;

IPC Classification: E04B1/94 ;

Equivalents: IE74227, IE930710 ;

ABSTRACT:

A fire stop covering device comprises a fire resistant hood (10) of air pervious material coated with a fire resistant intumescent material. The hood (10) is of a flexible net material and an air impervious collar (12) is provided around the opening of the hood (10). The collar (12) is of rigid material and fixing means in the form of two malleable straps (20) are provided on the collar (12) to secure the hood in position over an aperture provided in a fire resistant structure, e.g. a ceiling 16. The straps (20) are pivoted one to each of two opposite locations of the collar (12). The hood may have an aperture for passage of a cable, e.g. to a lamp housing.

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(51) INT CL⁵
E04B 1/94

(52) UK CL (Edition M)
E1D DDR2 DF105 D124 D2031 D429 D547

(56) Documents Cited

GB 2235710 A
Catalogue:Envirograf fire protection
products:Environmental Seals
Ltd,Dover,Kent,1992,Items 31 & 32

(58) Field of Search

UK CL (Edition L) E1D DF105 DF113
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(71) Applicant(s)

Arthur Peter Hamilton
117-119 Tates Avenue, Belfast, BT9 7BZ,
United Kingdom

(72) Inventor(s)

Arthur Peter Hamilton

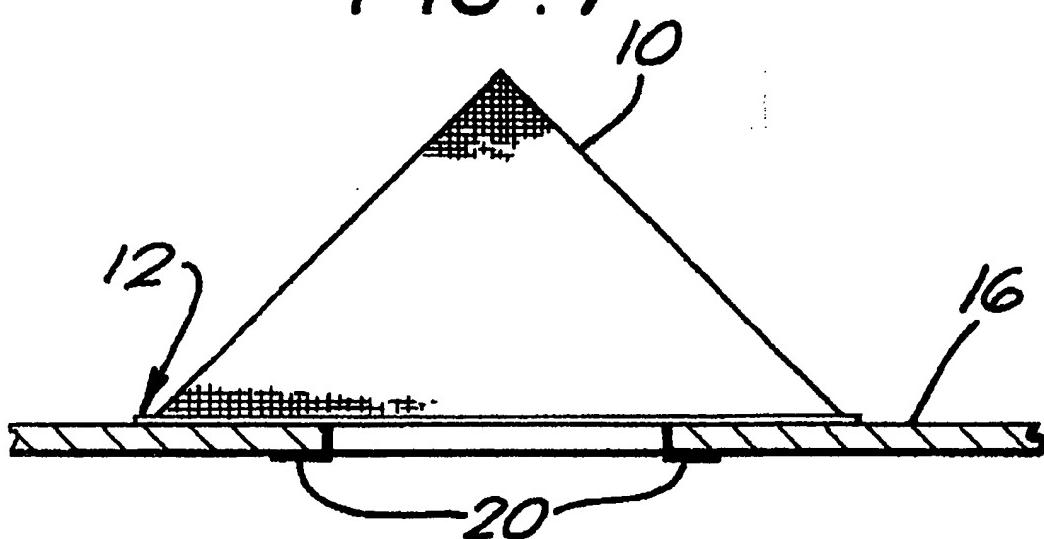
(74) Agent and/or Address for Service

R B S Robertson
240 Upper Newtownards Road, BELFAST,
Northern Ireland, BT4 3EU, United Kingdom

(54) Fire stop covering device, e.g. for ceiling aperture

(57) A fire stop covering device comprises a fire resistant hood (10) of air pervious material coated with a fire resistant intumescent material. The hood (10) is of a flexible net material and an air impervious collar (12) is provided around the opening of the hood (10). The collar (12) is of rigid material and fixing means in the form of two malleable straps (20) are provided on the collar (12) to secure the hood in position over an aperture provided in a fire resistant structure, e.g. a ceiling 16. The straps (20) are pivoted one to each of two opposite locations of the collar (12). The hood may have an aperture for passage of a cable, e.g. to a lamp housing.

FIG. 7



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FIG. 1

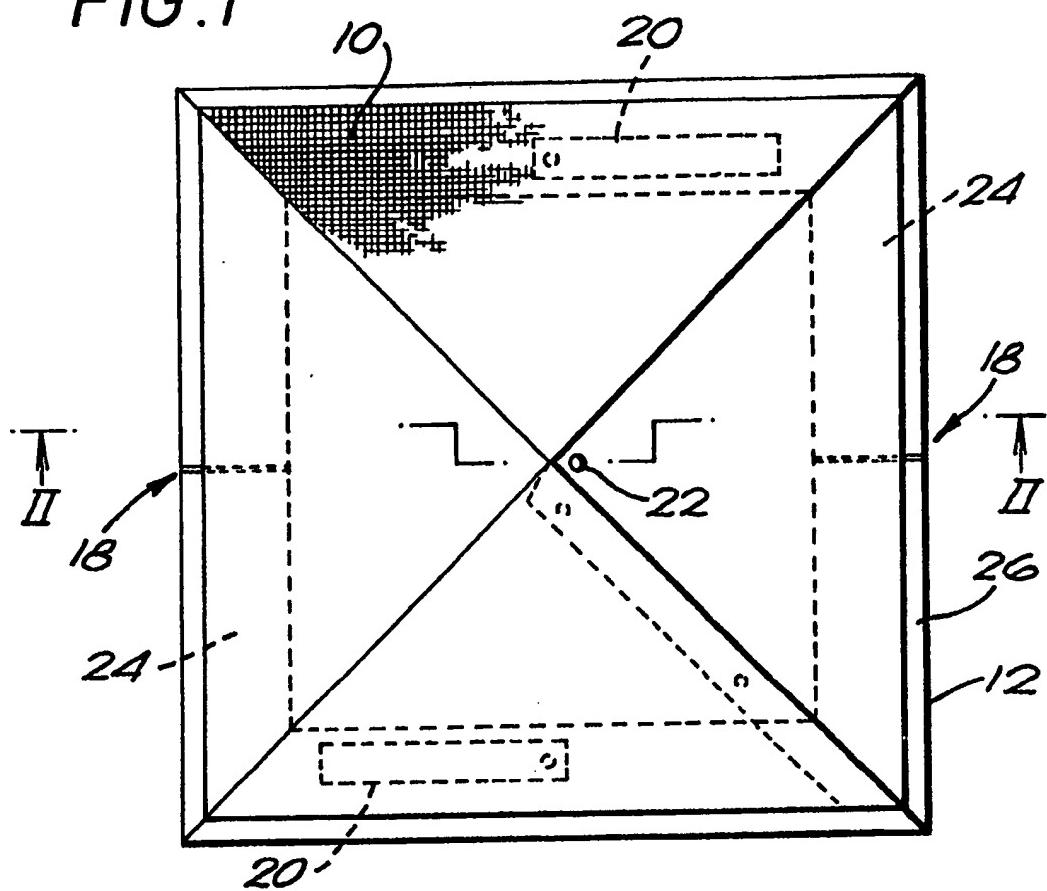
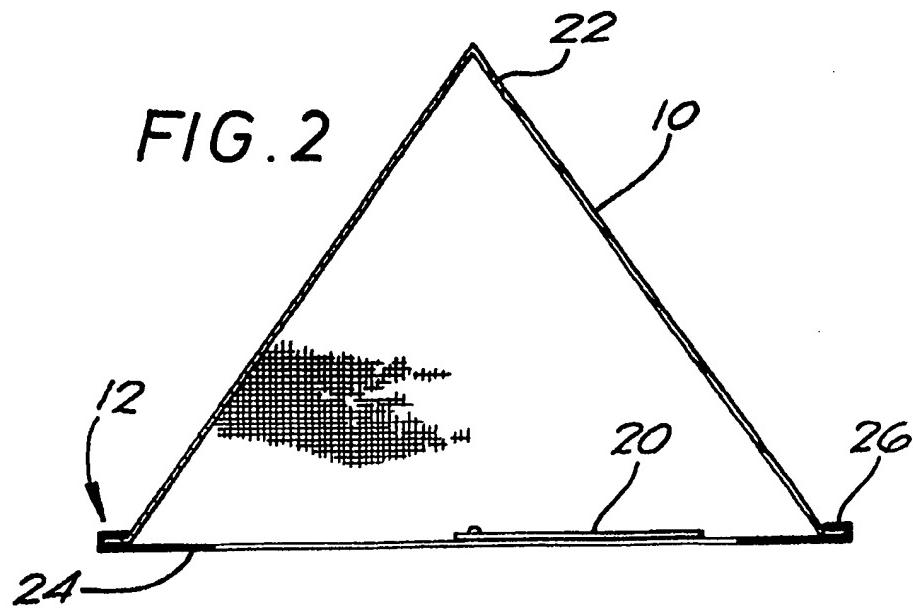


FIG. 2



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FIG. 3

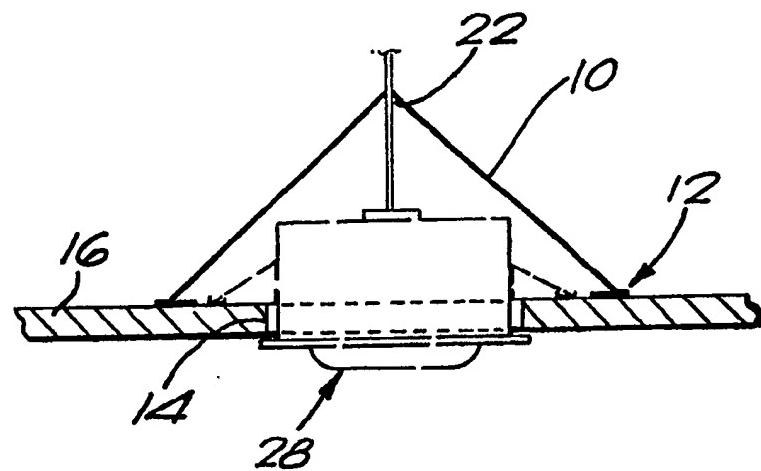
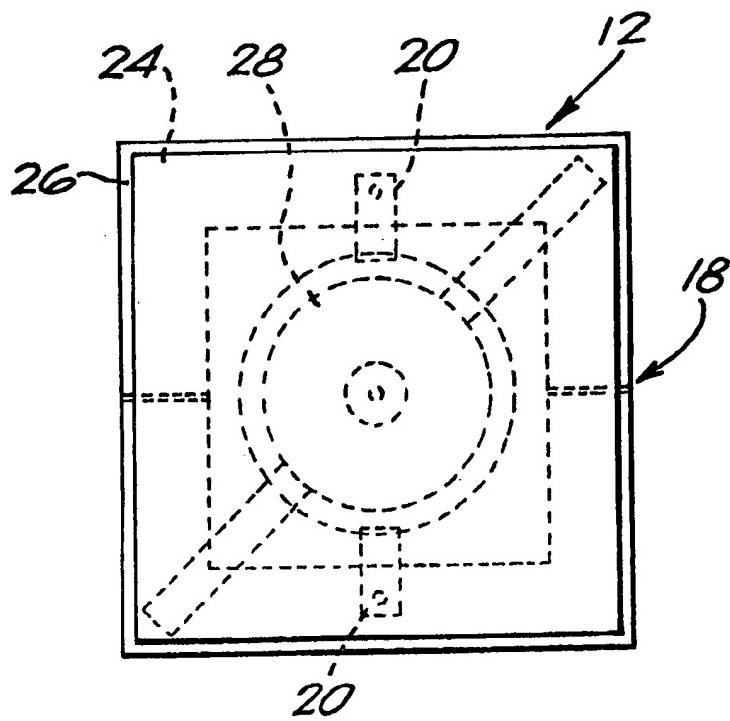


FIG. 4



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FIG. 5

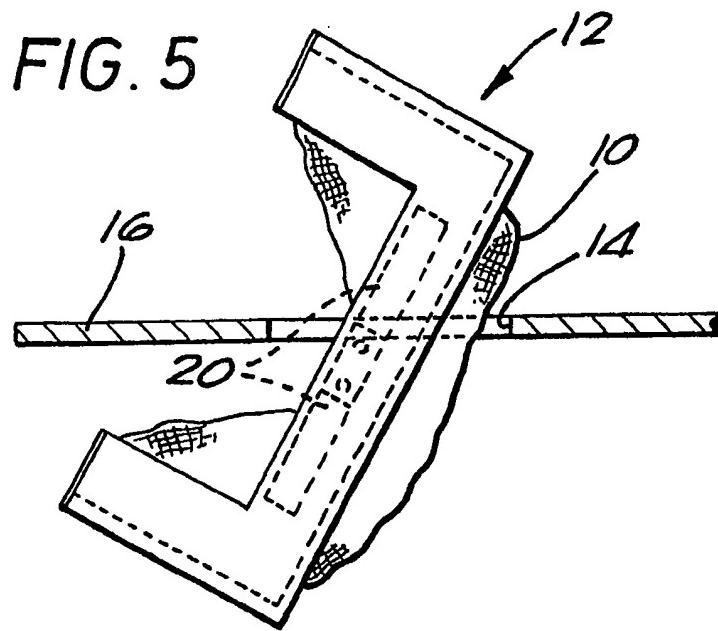


FIG. 6

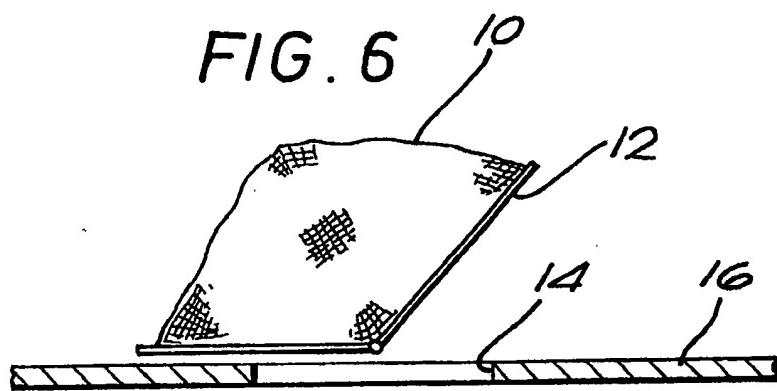
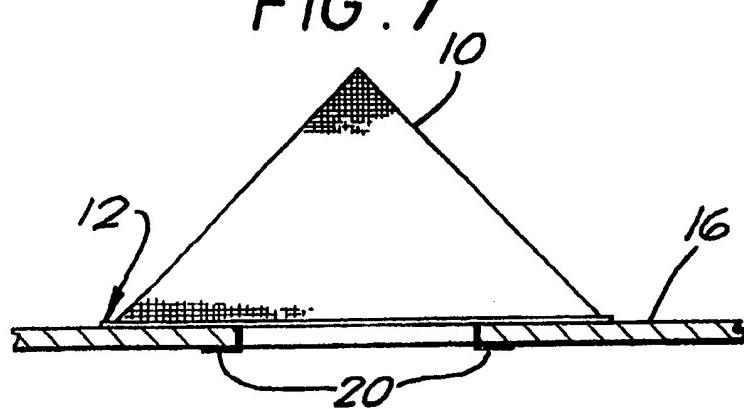


FIG. 7



FIRE STOP COVERING DEVICE FOR AN APERTURE IN A FIRE RESISTANT STRUCTURE.

This invention relates to a device for covering an aperture made in a fire resistant structure, for example a ceiling, the device having fire stop properties. Any aperture made in a fire resistant structure compromises the fire resistant value of such structure and therefore causes concern to, for example, fire authorities, insurance companies, building control authorities and other regulatory bodies. Each aperture, made in such a structure is to accommodate, for example an electrical fitting, such as a recessed lamp fitting, which itself is normally manufactured of materials which do not withstand prolonged exposure to fire. Heretofore, a fire resistant rigid solid walled box or cap has been used to cover each aperture and accommodate the recessed portion of the respective lamp fitting. While this box or cap may, if used, restore the overall fire resistant value to the structure, it has two disadvantages, in that firstly it can only be fitted during construction of the building or by gaining access from behind or above the structure by, for example removal of wall covering(s) or floor boards, and secondly it causes a financial penalty, namely that the bulb in each lamp fitting, when illuminated, causes a heat build up in the box due to non-ventilation of the box such that the element in that bulb blows. This means that bulbs have

to be replaced after short intervals and the cost of these replacement bulbs over a period of time can become expensive. Due to this latter disadvantage, there is a tendency either not to fit such boxes or to dislodge

05 them in some manner to allow ventilation thereby negating the purpose for which they were originally fitted. Also, openings in the box or cap to accommodate cable(s) are not protected. Unventilated fittings causing overheating can also cause wider problems

±0 inherent in overheated electrical systems such as shorting of the complete system or failure of other components or fittings.

It is an object of the present invention to obviate or mitigate this disadvantage.

±5 Accordingly, the present invention is a fire stop covering device comprising a fire resistant hood of air pervious material coated with a fire resistant intumescent material and fixing means to secure the hood in position over an aperture provided in a fire

20 resistant structure.

Preferably, the hood is of a flexible net material and an air impervious collar is provided around the opening of the hood. The collar is preferably of rigid material and the fixing means are desirably provided on

25 the collar.

Preferably also, the hood is of tented shape. A

hole is desirably provided at or near to the apex of the hood to allow for passage therethrough of a cable. The collar is beneficially formed in two halves hinged together.

05 Preferably further, the fixing means are two malleable straps, one pivoted to each half of the collar, the straps being movable between an out-of-use or stored position lying against the collar and a projecting position at which their projecting portions
10 are first bent downwardly through the aperture and secondly bent back against the structure into an in-use position.

An embodiment of the present invention will now be described, by way of example, with reference to the
15 accompanying drawings, in which:-

Fig. 1 shows a top plan view of an erected covering device according to the present invention;

Fig. 2 shows a cross-sectional view along the line II-II of Fig. 1;

20 Fig. 3 shows a cross-sectional view of a covering device when fitted over an aperture in a fire resistant structure and with a recessed lamp fitting in place;

Fig. 4 shows a plan view of the device with a recessed lamp fitting shown therein; and

25 Figs. 5, 6 and 7 show respectively three side views of the sequence of steps taken to fit and erect a device through an aperture in a structure.

Referring to the drawings, a fire stop covering device comprises a fire resistant hood 10 of air pervious material coated with a fire resistant intumescent material. The hood 10 is of tented shape, such as of pyramidal shape as shown, formed from a fire resistant flexible net material, and a hole 22 is provided at or near to its apex to allow for passage therethrough of a cable. The net material may be of one or more layers depending upon the degree of fire resistance required.

A collar 12 of rigid material, impervious to air, is provided around the opening of the hood 10 and is formed in two halves hinged together at 18. The collar 12, as shown, is of rectangular shape and has a flat band 24 reflexively turned back upon itself at its outer edge to form a flange 26, the hood 10 being secured to the collar 12 by being clamped between the flange 26 and the band 24.

Fixing means is provided to secure the hood 10 in position over an aperture 14 provided in a fire resistant planar structure, ie. a ceiling 16, the fixing means being provided on the collar 12. The fixing means are two malleable straps 20, one pivoted to each half of the collar 12, the straps 20 being movable between an out-of-use or stored position lying on top of and against the collar 12 and a projecting position at which

their projecting portions are first bent downwardly through the aperture 14 and secondly bent against the structure 16 into an in-use position. The apertures 14 may be square or round and the device used in each instance has a rectangular collar of greater areal dimensions than the aperture.

In use, the device with an one-piece collar is fitted over an aperture 14 as described above during construction. In most domestic applications, the apertures 14 are cut-out of a planar structure 16 after construction and in this case, devices with hinged collars 12 are used, the device being collapsed and passed through the respective aperture as shown in Fig. 5 and erected as shown in Figs. 6 and 7. A lamp fitting 28 is then inserted. In the event of fire, the intumescent material on the net material swells up to close off the mesh holes and around the cable hole to prevent access of the fire to the other side of the hood.

The areal dimensions of the collar and shape of the hood is determined by the size of aperture 14 itself dependant upon the shape of the lamp fitting, for example a recessed elongate flourescent tube fitting would require a correspondingly elongate tented hood.

In a first modification, the hood may be of perforated fire resistant sheet material with an intumescent coating.

In a second modification, no collar is provided and the hood is secured into, for example one or more grids of a grided support structure of a suspended ceiling, the fixing means comprising angular members to complement angular components or parts of components provided around the grid, the outer edges of the hood being trapped between the angular members and angular components and the members and components being rivetted, bolted or otherwise secured together trapping the outer edges of the hood therebetween.

Variations and other modifications can be made without departing from the scope of the invention described above and as claimed hereinafter.

CLAIMS

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1. A fire stop covering device comprising a fire resistant hood of air pervious material coated with a fire resistant intumescence material and fixing means to secure the hood in position over an aperture provided in a fire resistant structure.
2. A fire stop covering device as claimed in Claim 1, wherein the hood is of a flexible net material.
3. A fire stop covering device as claimed in Claim 1 or 2, wherein the hood is of tented shape.
4. A fire stop covering device as claimed in Claim 3, wherein a hole is provided at or near to the apex of the hood to allow for passage therethrough of a cable.
5. A fire stop covering device as claimed in anyone of the preceding Claims, wherein an air impervious collar is provided around the opening of the hood.
6. A fire stop covering device as claimed in Claim 5, wherein the collar is of rigid material and the fixing means are provided on the collar.

7. A fire stop covering device as claimed in Claim 5 or 6, wherein the collar is formed in two halves hinged together.

8. A fire stop covering device as claimed in any one of the preceding Claims, wherein the fixing means are two malleable straps.

05

9. A fire stop covering device as claimed in Claim 8 when dependant on Claim 7, wherein one strap is pivoted to each half of the collar, the straps being movable between an out-of-use or stored position lying against the collar and a projecting position at which their projecting portions are first bent downwardly through the aperture and secondly bent back against the structure into an in-use position.

10. A fire stop covering device substantially as hereinbefore described with reference to the accompanying drawings.

Patents Act 1977
 Examiner's report to the Comptroller under Section 17
 (The Search report)

9

Application number
 GB 9319052.8

Relevant Technical Fields

- (i) UK Cl (Ed.L) E1D DF105 DF113
 (ii) Int Cl (Ed.5) E04B

Search Examiner
 J D CANTRELL

Date of completion of Search
 3 DECEMBER 93

Documents considered relevant
 following a search in respect of
 Claims :-
 1-10

Databases (see below)

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.

- (ii) ONLINE: WPI

Categories of documents

- | | | | |
|----|---|----|---|
| X: | Document indicating lack of novelty or of inventive step. | P: | Document published on or after the declared priority date but before the filing date of the present application. |
| Y: | Document indicating lack of inventive step if combined with one or more other documents of the same category. | E: | Patent document published on or after, but with priority date earlier than, the filing date of the present application. |
| A: | Document indicating technological background and/or state of the art. | &: | Member of the same patent family; corresponding document. |

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2235710 ENVIRONMENTAL	1-3
X	Catalogue: "Envirograf Fire Prevention Products", from Environmental Seals Ltd, Dover, Kent, 1992 Items 31 and 32.	1,4

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).